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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/863,196	05/22/2001	Nagabhushana Sindhushayana	000359	9659
23696	7590	09/17/2004	EXAMINER	
Qualcomm Incorporated Patents Department 5775 Morehouse Drive San Diego, CA 92121-1714			SAM, PHIRIN	
			ART UNIT	PAPER NUMBER
			2661	

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/863,196

Applicant(s)

SINDHUSHAYANA ET AL.

Examiner

Phirin Sam

Art Unit

2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-14, 29 and 30 is/are allowed.
- 6) ☒ Claim(s) 15-23 and 28 is/are rejected.
- 7) ☒ Claim(s) 24-27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08/27/01.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

PHIRIN SAM
PRIMARY EXAMINER

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 15-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen et al (US Pub. 2002/0035709).

Chen et al discloses the invention (**claim 15**) as claimed including an apparatus for generating ordered sequences that can be transmitted in multi-slot packets in a wireless communication system, the apparatus comprising a channel interleaver configured to receive a plurality of systematic bits and a plurality of parity bits and to generate an output sequence, wherein generating the output sequence comprises:

- (a) demultiplexing the plurality of systematic bits and the plurality of parity bits into a plurality of sequences, wherein the plurality of systematic bits and the plurality of parity bits are sequentially distributed among the plurality of sequences (see Fig. 1, page 1, lines [0015], [0016]);
- (b) reordering the plurality of sequences (see Fig. 2, page 2, lines [0018], [0019], [0020])
- (c) forming a plurality of blocks from the reordered plurality of sequences (see Fig. 2, page 2, lines [0018], [0019], [0020])

(d) permuting elements of each block of the plurality of blocks, wherein the output sequence comprises permuted elements from each block of the plurality of blocks (see Fig. 2, page [0018], [0019]), [0020].

Regarding claims 16 and 17, Chen et al discloses the channel interleaver further permutes elements of each block by:

- (a) end-around shifting downward each element in each column of each block (see Fig. 2, page 2, lines [0019], [0020]);
- (b) switching the order of the columns within each block (see Fig. 2, page 2, lines [0023]).

Regarding claims 18-21, Chen et al discloses a symbol generation element, the symbol generation element for puncturing the output sequence in accordance with a predetermined puncture pattern (see Fig. 1, element 112, page 2, lines [0016]).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 22, 23, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US Pub. 2002/0035709) in view of Wheatley, III et al (US Pub. 2002/0131376).

Regarding claims 22, 23, 28, Chen et al discloses a method for interleaving data and parity symbols for transmission from a base station to a remote station in a wireless communication system, comprising:

- (a) permuting a plurality of data symbols to form a first permutation block (see Fig. 2, page 2, lines [0018]);
- (b) permuting a plurality of parity symbols to form a second permutation block (see Fig. 2, page 2, lines [0018]);
- (c) generating an output sequence by sequentially reading elements of the first permutation block and the second permutation block (see Fig. 2, page 2, lines [0020]);

Chen et al does not disclose scheduling a multi-slot packet transmission from the base station to the remote station, wherein the scheduling packets data symbols of the output sequence at the beginning of the multi-slot packet and parity symbols of the output sequence at the end of the multi-slot packet. However, Wheatley, III et al discloses scheduling a multi-slot packet transmission (see Fig. 2, element 48, page 5, lines [0051], [0052], [0080], [0081]). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine scheduling the multi-slot packet transmission teaching by Wheatley, III et al with Chen et al. The motivation for doing so would have been to provide to select the pending data transmission to prevent from congestion see page 2, line [0014]. Therefore, it would have been obvious to

Art Unit: 2661

combine Wheatley, III et al and Chen et al to obtain the invention as specified in the claims 22, 23, and 28.

Allowable Subject Matter

6. Claims 24-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 1-14 and 29-30 are allowed.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(1) Tong et al (U.S. Patent 6,744,744) discloses rate matching and channel interleaving for a communications system.

(2) Erozt et al (U.S. Patent 6,430,722) discloses forward error correction scheme for data channels using universal turbo codes.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phirin Sam whose telephone number is (571) 272-3082. The examiner can normally be reached on Mon-Fri, 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N Vanderpuye can be reached on (571) 272 - 3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2661

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Phirin Sam", written in a cursive style.

PHIRIN SAM
PRIMARY EXAMINER

Date: September 14, 2004